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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,774	12/08/2003	Roger D. Wright	2507-5738.2US (21807-US-0)	4971
60794	7590	10/26/2006	EXAMINER CASTELLANO, STEPHEN J	
TRASKBRITT, P.C. P.O. BOX 2550 SALT LAKE CITY, UT 84110			ART UNIT 3781	
DATE MAILED: 10/26/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/731,774

Applicant(s)

WRIGHT ET AL.

Examiner

Stephen J. Castellano

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3781

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 September 2006.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-43 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-43 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 and 12-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elliott et al. ('638)(Elliott) in view of Toth et al. (Toth).

Elliott discloses a vessel, the vessel includes a reinforcing structure comprising a plurality of gore pieces (strip 26), each gore piece is a sheet of fiber reinforced resin matrix material (a composite material) and includes a first surface (inside surface), a second opposing surface (outside surface), each gore piece has the geometric relationship claimed with first width, second lesser width, first longitudinal location at a greater radial distance and a second longitudinal location at a lesser radial distance. Elliott discloses the invention except for the vessel body and each gore piece being disposed over and conforming to a portion of the vessel body and the fibers being parallel to the first surface. Toth teaches a vessel with a vessel body (liner 12) with a reinforcing structure (reinforcement 14) disposed over and conforming to the entire surface of the vessel body. It would have been obvious to add an inner liner layer to provide a layer more compatible with the contents of the vessel. Toth also teaches fibers oriented parallel to the inner (first) surface of the reinforcement 14. It would have been obvious to reorient the fibers of Elliott from radial to a direction parallel to the inside surface of the reinforcement to better reduce tensile and hoop stress within the reinforcement.

Re claims 5-7, 9, 20-23, 26, 27, 29 and 9, the weave of a separate woven square mats of a first layer are taught to be oriented parallel and perpendicular to the vessel axis with a square mat of a second layer placed over the first layer where the second layer has a weave oriented at 45 degrees to the vessel axis as stated in col. 2, line 67 to col. 3, line 5.

Re claims 14 and 15, no offset or a zero degree offset is between +15 degrees to -15 degrees and is about 20 degrees or less.

Re claim 25, the method of making a reinforcing structure for a vessel is disclosed by the Elliott in view of Toth rejection.

Claims 10, 11 and 32-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elliott in view of Toth and Sneddon.

The combination of Elliott and Toth is as previously discussed above. The combination of Elliott and Toth discloses the invention except for the overlapping of a portion of at least one of the gore pieces with a portion of at least one other of the plurality of gore pieces. Sneddon teaches a reinforcement structure (outer jacket 16) constructed by superimposing and overlapping layers of impregnated filamentary material as best shown in Fig. 2 and 3. It would have been obvious to overlap the gore pieces over one another rather than to abut the gore pieces to insure that an inconsistency at the edge of a gore piece doesn't result in an opening in the reinforcement structure which can leave a portion of the vessel body unprotected and unreinforced and could also result in stress concentrations leading to reinforcement structure stress cracks and ultimately catastrophic pressure vessel failure.

The terminal disclaimer filed on September 25, 2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of the full

statutory term of prior patent No. 6719165 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Applicant's arguments filed September 25, 2006 have been fully considered but they are not persuasive. Applicant establishes that Elliott's filaments are oriented normal to the inner and outer surfaces of the panels. Applicant further states that the any modification including filaments parallel to the panel's inner and outer surfaces would result in a vessel unable to withstand any substantial external hydrostatic pressure. Elliott and Toth are pressure vessels. It is acceptable and appropriate to make a modification to the fiber orientation since one specific orientation of fibers provides different advantages over other orientations of the fibers. Such modification puts to use well known and widely practiced engineering design choice in evaluation of the stress situation and responding to this situation by modifying the structure to better absorb or reduce the highest stress. A modification of one structure having externally applied stress to be put to a different use through modification such as being able to withstand internal pressure is appropriate.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Castellano whose telephone number is 571-272-4535. The examiner can normally be reached on increased flexibility plan (IFP).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Stephen J. Castellano  
Primary Examiner  
Art Unit 3727

sjc